

mately 900 acres of land at Moffett. Of 15 pairs regularly observed, 73% of these (or 11 pairs) had a minimum of 27 chicks total, for an average of 2.5 chicks per brood, observed within three weeks of emergence. Shoreline had 23 owls (11 pairs and one single bird) living on 750 acres. Nine pairs of owls at Shoreline were regularly observed and seven of these (78% of pairs) had at least 21 chicks; the average of 3.0 chicks per brood was not significantly different from Moffett ($t = -0.975$; $df = 15$; $P = 0.05$). Observations indicate a difference in primary burrow location between Moffett and Shoreline birds. At Moffett, 15 of 19 primary burrow sites were located adjacent to or under a piece of cement or a fence, while four were located in a field without these features. Only one of the owl pairs at Shoreline chose burrows under cement or a fence, although such sites were available. Factors influencing this difference may be useful for enhancing burrowing owl habitat and are considered.

GENERAL SCIENTIFIC PROGRAM

CHAIR: MARK V. STALMASTER, *Stalmaster and Associates, 209 23rd Avenue, Milton, WA 98354*

ORANGE-BREASTED FALCON REPRODUCTION, DENSITY, AND BEHAVIOR IN NORTHERN CENTRAL AMERICA

BAKER, A.J. *P.O. Box 2492, Gig Harbor, WA 98335. D.F. WHITACRE. The Peregrine Fund Inc., 5666 W. Flying Hawk Lane, Boise, ID 83709*

The Orange-breasted Falcon (*Falco deiroleucus*) is known to occur in New World tropical forests from northern Argentina, Paraguay, and Bolivia north through Central America to Guatemala and southeast Mexico. As part of The Peregrine Fund's Maya Project, I searched for and studied nesting pairs of *F. deiroleucus* in Belize and Guatemala from mid-February through mid-June 1992. Fifty-four days were spent exploring areas for new pairs and 48 days observing at known sites. Of 13 sites (new and known from previous years) in Belize and Guatemala, 12 were visited, and 10 were occupied by Orange-breasted Falcons. Of the 10 pairs, five pairs fledged eight young with broods of one to three, one pair failed, and the productivity of four pairs is unknown. Eight of the 10 pairs occupied cliffs above either rivers or standing water surrounded by unaltered forest. Of the remaining two, one used a dry limestone sinkhole and the other an emergent Palm (*Orbignya cohune*). In two areas of Belize, groups of three pairs occurred inside diameters of 10 km, including two facing pairs <1 km apart. Nuptial behavior was well underway by mid-February and eggs were laid in the first half of March. Behavior observed included courtship, mounting, nest scraping, prey exchanges, caching, hunting, interspecific territoriality, and mock fighting between recently fledged siblings. The virtually unknown *F. dei-*

roleucus is certainly under pressure; a fast-growing human population, logging, slash-and-burn agriculture, and livestock grazing have and will continue to push these falcons out of suitable nesting areas. Learning more about their habitat and prey requirements will help in attempts to preserve forests and falcons in the Neotropics.

AMERICAN KESTRELS AT MCGILL UNIVERSITY: THE FIRST TWENTY YEARS

BIRD, D.M. *Avian Science and Conservation Centre of McGill University, 21,111 Lakeshore Road, Ste. Anne de Bellevue, Quebec, Canada, H9X 3V9*

Beginning with 10 pairs of captive kestrels in 1972-73, the McGill colony has been established at roughly 300 pedigreed birds. The kestrels have been used to develop procedures for artificial insemination (including frozen-thawed semen), artificial incubation, and forest re-nesting. A model involving *Trichinella pseudospiralis* and the kestrel has been used successfully to determine the impact of parasite load on health, reproductive performance, mate choice, and foraging behavior. Several studies have focused on endocrinology, specifically androgens, estrogens, corticosterone, luteinizing hormone, and more recently, growth hormone. Toxicological research has been aimed at DDE, PCBs, mirex, fluoride, aluminum, and fenthion. The above studies, as well as newly initiated work on paternity and inbreeding, will be summarized.

NORTHERN GOSHAWK DIETS IN PONDEROSA PINE FORESTS ON THE KAIBAB PLATEAU

BOAL, C.W. AND R.W. MANNAN. *School of Renewable Natural Resources, Biological Sciences East, University of Arizona, Tucson, AZ 85721*

Little dietary information is known for Northern Goshawks (*Accipiter gentilis*) in the southwest. We conducted 1539 hours of direct observation at 20 active goshawk nests in ponderosa pine forests on the North Kaibab Ranger District, Arizona, 1990-92. A total of 384 prey deliveries was recorded, 306 were identified to species, 63 were identified to class, and 15 were unidentifiable. Mammals and birds made up 75.1% and 24.9% of the items delivered, respectively. Golden-mantled ground squirrels (*Citellus lateralis*) and cottontail rabbits (*Sylvilagus* spp.) were the most common mammalian prey species, constituting 41.1% of all identified prey. Steller's jays (*Cyanocitta stelleri*) and northern flickers (*Colaptes auratus*) were the most common avian prey species and constituted 16.0% of all identified prey. Mean prey delivery rate was 0.25 deliveries per hour.

EFFECTS OF THE EXXON VALDEZ OIL SPILL ON BALD EAGLES

BOWMAN, T.D. *U.S. Fish and Wildlife Service, P.O. Box 768, Cordova, AK 99574*